

### ABSTRACT OF THE DISCLOSURE

Disclosed is a variable-volume rotary machine a principle of which is that the elements, which act as the rotary piston elements, themselves rotate about a secondary axis that passes through the piston element as they orbit about the primary axis of the machine. The operation volume of the present invention is a modified toroidal defined as the volume swept out by the piston elements as they simultaneously orbit the primary axis and rotate about the secondary axes. Described are two preferred embodiments of the present invention, one in which the piston elements rotate about an axis that is perpendicular to the axis of the toroid, and the other in which the piston elements rotate about an axis that is parallel to the axis of the toroid.